FORM PTO-1390 (Modified) (REV 10-95) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: **6388-0518-0 PCT**

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR): 09/555523

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/FR99/02361	**04 OCTOBER 1999**	**08 OCTOBER 1998**

TITLE OF INVENTION

STABLE OIL-IN-WATER EMULSION, PROCESS FOR MANUFACTURING IT AND ITS USE IN COSMETICS AND DERMATOLOGY

APPLICANT(S) FOR DO/EO/US

Veronique ROULIER, et al

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☒ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☒ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 18 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
    A **SECOND** or **SUBSEQUENT** preliminary amendment.
16. ☐ A substitute specification.
17. ☐ A change of power of attorney and/or address letter.
18. ☐ Certificate of Mailing by Express Mail
19. ☒ Other items or information:

Notice of Priority
PCT/IB/308
Request For Consideration of Documents Cited in International Search Report

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/555523	PCT/FR99/02361	6388-0518-0 PCT

20. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

		CALCULATIONS PTO USE ONLY
☒	Search Report has been prepared by the EPO or JPO	**$840.00**
☐	International preliminary examination fee paid to USPTO (37 CFR 1.482)	**$670.00**
☐	No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2))	**$760.00**
☐	Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO	**$970.00**
☐	International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)	**$96.00**

ENTER APPROPRIATE BASIC FEE AMOUNT =	**$840.00**	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☒ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).	**$130.00**	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	13 - 20 =	0	x $18.00	**$0.00**	
Independent claims	1 - 3 =	0	x $78.00	**$0.00**	
Multiple Dependent Claims **(check if applicable)**.			☐	**$0.00**	
TOTAL OF ABOVE CALCULATIONS			=	**$970.00**	
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) **(check if applicable)**.			☐	**$0.00**	
SUBTOTAL			=	**$970.00**	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).			+	**$0.00**	
TOTAL NATIONAL FEE			=	**$970.00**	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).**			☐	**$0.00**	
TOTAL FEES ENCLOSED			=	**$970.00**	
				Amount to be: refunded	$
				charged	$

☒ A check in the amount of **$970.00** to cover the above fees is enclosed.

☐ Please charge my Deposit Account No. in the amount of to cover the above fees.
A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **15-0030** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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Norman F. Oblon
NAME

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REGISTRATION NUMBER

June 8, 2000
DATE

6388-0518-0 PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :

VERONIQUE ROULIER ET AL : ATTN: APPLICATION DIVISION

SERIAL NO: NEW APPLICATION :

FILED: HEREWITH :

FOR: STABLE OIL-IN-WATER EMULSION, PROCESS FOR MANUFACTURING IT AND ITS USE IN COSMETICS AND DERMATOLOGY

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Prior to examination on the merits, please amend the above-identified application as follows.

IN THE CLAIMS

Claim 3, line 1, delete "or 2".

Claim 4, lines 1-2, replace "the preceding claim" with --claim 3--.

Claim 5, lines 1-2, replace "any one of the preceding claims" with --claim 1--.

Claim 6, lines 1-2, replace "any one of the preceding claims" with --claim 1--.

Claim 7, lines 1-2, replace "any one of the preceding claims" with --claim 1--.

Claim 8, lines 1-2, replace "any one of the preceding claims" with --claim 1--.

Claim 9, lines 1-2, replace "any one of the preceding claims" with --claim 1--.

Claim 10, line 2, replace any one of Claims 1 to 9" with --Claim 1--.

Claim 11, lines 1-2, replace any one of Claims 1 to 9" with --Claim 1--.

Claim 12, line 2, replace "Claims 1 to 9" with --Claim 1--.

REMARKS

Claims 1-13 are active in this application.

The claims have been amended to remove multiple dependencies. No new matter is believed to have been added to this application by these amendments.

Applicants submit that the present application is ready for examination on the merits. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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Docket No: 6388-0518-0 PCT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Veronique ROULIER, et al

SERIAL NO.: NEW U.S. PCT APPLICATION

FILED: HEREWITH

INTERNATIONAL APPLICATION NO.: PCT/FR99/02361

INTERNATIONAL FILING DATE: 04 OCTOBER 1999

FOR: STABLE OIL-IN-WATER EMULSION, PROCESS FOR MANUFACTURING IT AND ITS USE IN COSMETICS AND DERMATOLOGY

REQUEST FOR PRIORITY UNDER 35 U.S.C. 119 AND THE INTERNATIONAL CONVENTION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In the matter of the above-identified application for patent, notice is hereby given that the applicant claims as priority:

COUNTRY	APPLICATION NO	DAY/MONTH/YEAR
FRANCE	98/12622	08 OCTOBER 1998

Certified copies of the corresponding Convention application(s) were submitted to the International Bureau in PCT Application No. **PCT/FR99/02361**.

Respectfully submitted,

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Stable oil-in-water emulsion, process for manufacturing it and its use in cosmetics and dermatology

The invention relates to a stable oil-in-water (O/W) emulsion comprising oil globules with an average size of less than 20 microns and containing at least 15% of oily phase and at least one copolymer of a fatty-chain carboxylic acid. The invention also relates to the process for preparing such an emulsion and to its use in cosmetics and/or dermatology.

For various reasons associated in particular with their substantial feeling of comfort when used and their freshness, cosmetic compositions are usually in the form of an emulsion of the oil-in-water type, comprising an oily phase uniformly dispersed in an aqueous phase. In these conventional emulsions, the size of the globules constituting the fatty phase is generally greater than several tens of microns. Such emulsions can have cosmetic properties (oily feel) and physical properties (stability) that are insufficient. The insufficiency of stability is reflected by the appearance of a phenomenon of separation (dephasing) between the aqueous and oily phases of the emulsion. This instability is detrimental to the storage of the emulsions.

In order to obtain a stable emulsion, it is necessary to add emulsifiers (or surfactants) thereto, which place themselves at the interface of the aqueous and oily phases. However, the presence of surfactants has several drawbacks, and in particular it usually requires the emulsion to be prepared under *warm*

conditions, which especially limits the nature of the active agents to be introduced into the emulsion. In particular, this process excludes the use of heat-sensitive active agents. Thus, it has been sought to dispense with surfactants. Moreover, surfactants can lead to irritations, in particular in individuals with sensitive skin.

The Applicant Company has discovered, unexpectedly, that emulsions with a large content of oily phase and free of surfactant can be prepared by having globules of oil with an average size of less than 20 microns and by using a copolymer consisting of a major fraction of monoolefinically unsaturated C_3-C_6 carboxylic acid monomer or its anhydride and a minor fraction of acrylic acid fatty-chain ester monomer.

A subject of the present invention is thus an emulsion comprising an oily phase dispersed in an aqueous phase, characterized in that the globules of the oily phase have an average size of less than 20 microns, in that the oily phase constitutes at least 15% by weight relative to the total weight of the emulsion and in that the aqueous phase contains at least one copolymer consisting of a major fraction of monoolefinically unsaturated C_3-C_6 carboxylic acid monomer or its anhydride and a minor fraction of acrylic acid fatty-chain ester monomer, and in that it is free of surfactant.

Admittedly, it is known practice to use fatty-chain polymers to stabilize an emulsion, but when the amount of oil is too large, the emulsion has a tendency to become destabilized over time. According to the present invention, good stability is obtained even in the presence of a large amount of oil, due to the fact that the oil globules are sufficiently small in size. In addition, these oil globules are monodispersed, i.e. they virtually all have the same size, unlike the emulsions of the prior art in which the particles of dispersed phase usually have quite diverse sizes.

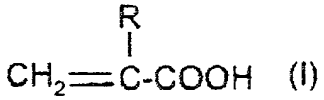
The copolymers used in the emulsion of the invention have the advantage, over the surfactants usually used, not only of stabilizing the emulsion but also of gelling it. In addition, unlike surfactants, they do not penetrate into the skin, thereby considerably reducing the risk of irritation.

The copolymers used in the emulsions in accordance with the present invention are prepared by polymerizing a predominant amount of monoolefinically unsaturated carboxylic acid monomer or its anhydride, with a smaller amount of an acrylic fatty-chain ester monomer. The term "fatty chain" means a linear or branched alkyl radical containing from 8 to 30 carbon atoms.

The amount of carboxylic acid monomer or of its anhydride preferably ranges from 80 to 98% by

weight and more particularly from 90 to 98% by weight, whereas the acrylic ester is present in amounts ranging from 2 to 20% by weight and more particularly from 1 to 10% by weight, the percentages being calculated relative to the total weight of the two monomers.

The preferred carboxylic monomers are chosen from those corresponding to formula (I) below:

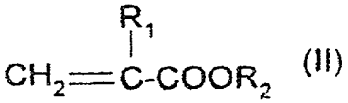


(I)

in which R denotes hydrogen, a halogen, a hydroxyl group, a lactone group, a lactam group, a cyanogen (-C=N) group, a monovalent alkyl group, an aryl group, an alkylaryl group, an aralkyl group or a cycloaliphatic group.

The carboxylic monomers which are particularly preferred are chosen from acrylic acid and methacrylic acid or mixtures thereof.

The acrylic fatty-chain ester monomers are preferably chosen from those corresponding to formula (II) below:



(II)

in which R_1 is chosen from the group formed from hydrogen, a methyl radical and an ethyl radical, and R_2 is a C_8-C_{30} alkyl group.

The ester monomers which are particularly preferred are those for which R_1 is hydrogen or a methyl radical and R_2 is a C_{10}-C_{22} alkyl group.

The copolymer used in the emulsion of the invention can optionally be crosslinked using a crosslinking agent used in an amount ranging from 0.1 to 4%, preferably from 0.2 to 1%, by weight relative to the total weight of carboxylic monomers and of acrylic ester monomers. The crosslinking agent can be chosen in particular from polymerizable monomers containing a polymerizable CH_2=C- group and at least one other polymerizable group, in which the unsaturated bonds are not conjugated with each other.

These copolymers are described in document EP-A-0 268 164 and are obtained according to the preparation methods described in that same document.

The copolymers more particularly used are those with a viscosity, measured using a Brookfield viscometer in an aqueous 2% solution and at 25°C, of less than or equal to 5000 cPs (5 Pa.s) and more preferably of about 3000 cPs (3 Pa.s), and more especially acrylate/C_{10}-C_{30}-alkylacrylate copolymers such as the products sold under the names Pemulen TR1, Pemulen TR2 and Carbopol 1382 by the company Goodrich, or mixtures thereof.

The copolymer is used in the emulsion in accordance with the invention in concentrations preferably ranging from 0.1 to 4% by weight and more particularly from 0.1 to 2% by weight relative to the total weight of the emulsion.

The emulsion of the invention is free of surfactant. Thus, on account of the absence of surfactant, this emulsion has the advantage of allowing the incorporation of heat-sensitive active agents and of not being irritant to the skin, particularly to sensitive skin.

Moreover, the average size of the globules in the oily phase, measured on a number basis by a laser scattering method, is less than 20 microns, and preferably ranges from 0.5 to 15 microns. On account of the fineness of these oil globules, the emulsion obtained has particularly satisfactory sensory and visual qualities.

The nature of the oily phase in the emulsion according to the invention is not critical. The oily phase can thus consist of any fatty substance, and in particular oils, conventionally used in cosmetics and dermatology.

Among the oils which can be used in the emulsion of the invention, mention may be made in particular, for example, of plant oils (jojoba oil, avocado oil), mineral oils (petroleum jelly), synthetic oils (ethylhexyl palmitate, isopropyl myristate), volatile silicone oils (cyclomethicone), non-volatile silicone oils and fluoro oils. The other fatty substances which can be present in the oily phase may be, for example, fatty acids, fatty alcohols and waxes (liquid jojoba wax).

The oily phase of the emulsion can represent from 15 to 45% by weight and better still from 20 to 30% by weight relative to the total weight of the emulsion.

The emulsion according to the invention can be used in any field in which this type of pharmaceutical form is advantageous, in particular in cosmetics and dermatology. When it constitutes a cosmetic and/or dermatological composition, it also advantageously contains a physiologically acceptable medium, i.e. a medium which is compatible with the skin, mucous membranes, the nails and/or the hair.

The emulsions which are the subject of the invention find their application in a great number of cosmetic and/or dermatological treatments for the skin, mucous membranes and the hair, including the scalp, in particular for protecting, caring for, cleansing and/or making up the skin and/or mucous membranes, for protecting, caring for and/or cleansing the hair and/or for therapeutically treating the skin, the hair and/or mucous membranes (the lips).

The emulsions according to the invention can be used, for example, as care products and/or cleansing products for the face in the form of creams or milks, or as make-up products (for the skin and lips) by incorporation of fillers, pigments or dyes.

Thus, a further subject of the invention is the cosmetic use of the emulsion as defined above for

treating, protecting, caring for and/or cleansing the skin, mucous membranes and/or the hair, and/or for making up the skin and/or mucous membranes.

Another subject of the invention is the use of the emulsion as defined above for manufacturing a dermatological composition intended for treating and/or protecting the skin, mucous membranes and/or the hair.

In addition, in a known manner, the emulsions of the invention can contain adjuvants that are common in cosmetics or dermatology, such a hydrophilic or lipophilic active agents, preserving agents, antioxidants, fragrances, solvents, fillers, screening agents, dyestuffs, basic agents (triethanolamine) or acidic agents, as well as lipid vesicles. These adjuvants are used in proportions that are usual in cosmetics or dermatology, and, for example, from 0.01 to 30% relative to the total weight of the emulsion, and they are, depending on their nature, introduced into the aqueous phase or into the oily phase of the emulsion, or alternatively into vesicles. These adjuvants and their concentrations must be such that they do not modify the property desired for the emulsion.

If it is desired to obtain a less fluid emulsion, one or more gelling agents can be added thereto, such as clays, polysaccharide gums (xanthan gum), carboxyvinyl polymers or carbomers. These gelling agents are used in concentrations ranging from 0.1 to

10%, preferably 0.1 to 5% and better still from 0.1 to 3% relative to the total weight of the composition.

The emulsions of the invention can optionally be free of solvent. This is also in keeping with a relatively non-aggressive and non-irritant emulsion which can be used by individuals with sensitive skin. However, if necessary, they can contain a solvent, in particular a lower alcohol containing from 1 to 6 carbon atoms, more particularly ethanol. The amount of solvent can range up to 30% relative to the total weight of the composition.

The emulsions according to the invention can be prepared by any appropriate means for obtaining oily globules less than 20 microns in size. According to one preferred embodiment of the invention, they are prepared by using a microporous membrane, this technique making it possible to obtain a globule size which is particularly suited to the aim of the invention, and in particular calibrated, monodisperse oil globules. Such a technique is described, for example, in document EP-A-546 174.

Thus, a further subject of the invention is a process for manufacturing the emulsion as defined above, which consists in introducing, under pressure, the oily phase into the aqueous phase containing the copolymer, through a hydrophilic porous glass membrane with an average pore size ranging from 0.1 to 5 μm and

preferably from 0.3 to 3 μm, at a pressure greater than the critical pressure.

Preferably, the membrane is pretreated under vacuum and with ultrasound in demineralized water containing about 2 grams per litre of aqueous phase of the composition according to the invention, this treatment lasting for about 1 hour.

The expression "critical pressure" means the minimum pressure required to introduce a dispersed phase into a continuous phase through a porous glass membrane of determined pore size. The critical pressure (in kPa) is defined by the following equation:

$Pc = 4\gamma_{ow}\cos\theta/D_m$,

in which γ_{ow} is the interface tension (mN/m), θ is the contact angle (rad) and D_m is the average size of the pores (μm) of the porous glass membrane.

In the process of the invention, the pressure used is preferably Pc + 20 kPa.

For example, a membrane with a pore size ranging from 0.1 to 5 μm can be used, using a pressure preferably ranging from 350 to 30 kPa (3.5 to 0.3 bar). Preferably, the membrane used has a pore size of 0.3 μm, 0.7 μm or 2.8 μm and, in this case, a pressure ranging, respectively, from 220 to 320 kPa (2.2. to 3.2 bar), from 140 to 200 kPa (1.4 to 2 bar) and from 30 to 70 kPa (0.3 to 0.7 bar) is used.

The example below illustrates the invention. In this example, the percentages are given on a weight basis.

Example 1:

Phase A

Pemulen TR2		0.75	%
Triethanolamine		0.75	%
Preserving agents		0.2	%
Demineralized water	qs	100	%

Phase B

Volatile silicone oil (cyclopentasiloxane)		20	%

Procedure:

A membrane with a pore size of 0.7 µm is immersed in one litre of demineralized water containing 2 grams of phase A, and is then placed under vacuum and under ultrasound for one hour.

After this treatment of the membrane, phase A is pumped to pass it into the membrane. Phase B is placed under pressure up to the critical pressure of 170 kPa (1.7 bar). Phase B is then emulsified in phase A under a pressure of 190 kPa (1.9 bar).

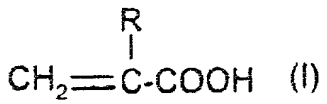
A very fine emulsion is obtained which feels very pleasant when applied.

CLAIMS

1. Emulsion comprising an oily phase dispersed in an aqueous phase, characterized in that the globules of the oily phase have an average size of less than 20 microns, in that the oily phase constitutes at least 15% by weight relative to the total weight of the emulsion and in that the aqueous phase contains at least one copolymer consisting of a major fraction of monoolefinically unsaturated C_3-C_6 carboxylic acid monomer or its anhydride and a minor fraction of acrylic acid fatty-chain ester monomer, and in that it is free of surfactant.

2. Emulsion according to Claim 1, characterized in that the amount of carboxylic acid monomer or of its anhydride in the copolymer ranges from 80 to 98% by weight and in that the amount of ester monomer ranges from 20 to 2% by weight, the percentages by weight being expressed relative to the total weight of the two monomers.

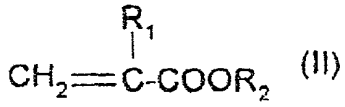
3. Emulsion according to Claim 1 or 2, characterized in that the carboxylic acid monomer is a compound of formula (I):



(I)

in which R denotes hydrogen, a halogen, a hydroxyl group, a lactone group, a lactam group, a cyanogen group, a monovalent alkyl group, an aryl group, an alkylaryl group, an aralkyl group or a cycloaliphatic

group, and in that the ester monomer is a compound of formula (II):



(II)

in which R_1 is chosen from the group formed from hydrogen, a methyl radical and an ethyl radical, and R_2 is a C_8-C_{30} alkyl group.

4. Emulsion according to the preceding claim, characterized in that the carboxylic acid monomer is chosen from acrylic acid, methacrylic acid and mixtures thereof, and in that the ester monomer is chosen from monomers of formula (II) in which R_1 is hydrogen or a methyl radical and R_2 is a C_{10}-C_{22} alkyl group.

5. Emulsion according to any one of the preceding claims, characterized in that the copolymer is present in an amount ranging from 0.1 to 4% by weight and preferably from 0.1 to 2% by weight relative to the total weight of the emulsion.

6. Emulsion according to any one of the preceding claims, characterized in that the average size of the globules in the oily phase ranges from 0.5 to 15 microns.

7. Emulsion according to any one of the preceding claims, characterized in that the oily phase of the emulsion represents from 15 to 45% by weight and preferably from 20 to 30% by weight relative to the total weight of the emulsion.

8 Emulsion according to any one of the preceding claims, characterized in that it constitutes a cosmetic and/or dermatological composition.

9. Emulsion according to any one of the preceding claims, characterized in that it contains at least one additive chosen from hydrophilic active agents, lipophilic active agents, preserving agents, antioxidants, fragrances, solvents, fillers, sunscreens, pigments, dyestuffs, basic agents, acidic agents, lipid vesicles and gelling agents.

10. Cosmetic use of the emulsion according to any one of Claims 1 to 9, for treating, protecting, caring for and/or cleansing the skin, mucous membranes and/or the hair, and/or for making up the skin and/or mucous membranes.

11. Use of the emulsion according to any one of Claims 1 to 9, for the manufacture of a dermatological composition intended for treating and/or protecting the skin, mucous membranes and/or the hair.

12. Process for manufacturing an emulsion as defined in Claims 1 to 9, which consists in introducing, under pressure, the oily phase into the aqueous phase containing the copolymer, through a hydrophilic porous glass membrane with an average pore size ranging from 0.1 to 5 μm and preferably from 0.3 to 3 μm, at a pressure greater than the critical pressure.

13. Manufacturing process according to Claim 12, characterized in that the pressure ranges from 30 to 350 kPa.

ABSTRACT

Stable oil-in-water emulsion, process for manufacturing it and its use in cosmetics and dermatology

The present invention relates to an emulsion comprising an oily phase dispersed in an aqueous phase, characterized in that the globules of the oily phase have an average size of less than 20 microns, in that the oily phase constitutes at least 15% by weight relative to the total weight of the emulsion and in that the aqueous phase contains at least one copolymer consisting of a major fraction of monoolefinically unsaturated C_3-C_6 carboxylic acid monomer or its anhydride and a minor fraction of acrylic acid fatty-chain ester monomer, and in that it is free of surfactant.

The invention also relates to the use of the said emulsion in cosmetics and/or dermatology, in particular for treating, protecting, caring for and/or cleansing the skin, mucous membranes and/or the hair, and/or for making up the skin and/or mucous membranes.

The invention moreover relates to a process for preparing the said emulsion, which consists in introducing, under pressure, the oily phase into the aqueous phase containing the copolymer, through a hydrophilic porous glass membrane with an average pore size ranging from 0.1 to 5 µm and preferably from 0.3

to 3 μm, at a pressure greater than the critical pressure.

Declaration and Power of Attorney for Patent Application
Déclaration et Pouvoirs pour Demande de Brevet

French Language Declaration

En tant l'inventeur nommé ci-après, je déclare par le présent acte que:

As a below named inventor, I hereby declare that:

Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.

My residence, post office address and citizenship are as stated next to my name.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

STABLE OIL-IN-WATER EMULSION, PROCESS FOR MANUFACTURING IT AND ITS USE IN COSMETICS AND DERMATOLOGY

et dont la description est fournie ci-joint à moins

the specification of which.

☐ ci-joint

☐ a été déposée le _____

sous le numéro de demande des Etats-Unis ou le numéro de demande international PCT

_____ et modifiée le

_____ (le cas échéant)

☐ is attached hereto

☒ was filed on June 8, 2000

as United States Application Number or PCT International Application Number

_____ and was amended on

_____ (if applicable).

Serial No. 09/555,523

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifiées par toute modification dont il aura été fait référence ci-dessus.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1 56.

French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)
Demande(s) de brevet antérieure(s) dans un autre pays

(Number) (Numéro)	(Country) (Pays)	(Day/Month/Year Filed) (Jour/Mois/Anné de dépôt)	Priority claimed Droit de priorité revendiqué: Yes Oui	No Non
98/12622	FRANCE	08 October 1998	☒	☐
			☐	☐

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 119(e) du Code des Etats-Unis, de toute demande de brevet provisoire effectuée aux Etats-Unis et figurant ci-dessous

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below

(Application No) (N° de demande)	(Filing Date) (Date de dépôt)	(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1 56 which became available between the filing date of the prior application and the national or PCT International filing date of this application

(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)	(Status) (patented, pending, abandoned) (Statut) (breveté, en cours d'examen, abandonné)
PCT/FR99/02361	04 October 1999	

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique, et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d' une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon

French Language Declaration

POUVOIRS. En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu'ils poursuive(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec l'Office des brevets et des marquees: *(mentionner le nom et le numéro d'enregistrement)*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number)*

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(Fournier les mêmes renseignements et la signature de tout co-inventeur supplémentaire)

(Supply similar information and signature for third and subsequent joint inventors)